Ref. No. 3421

ONKYO® SERVICE MANUAL

STEREO CASSETTE TAPE DECK

MODEL TA-RW909

Black models

UDN, UDC, UD	120V AC, 60Hz
UG	230V AC, 50Hz
UW	120 or 220V AC, 50/60Hz
UQA	240V AC, 50Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

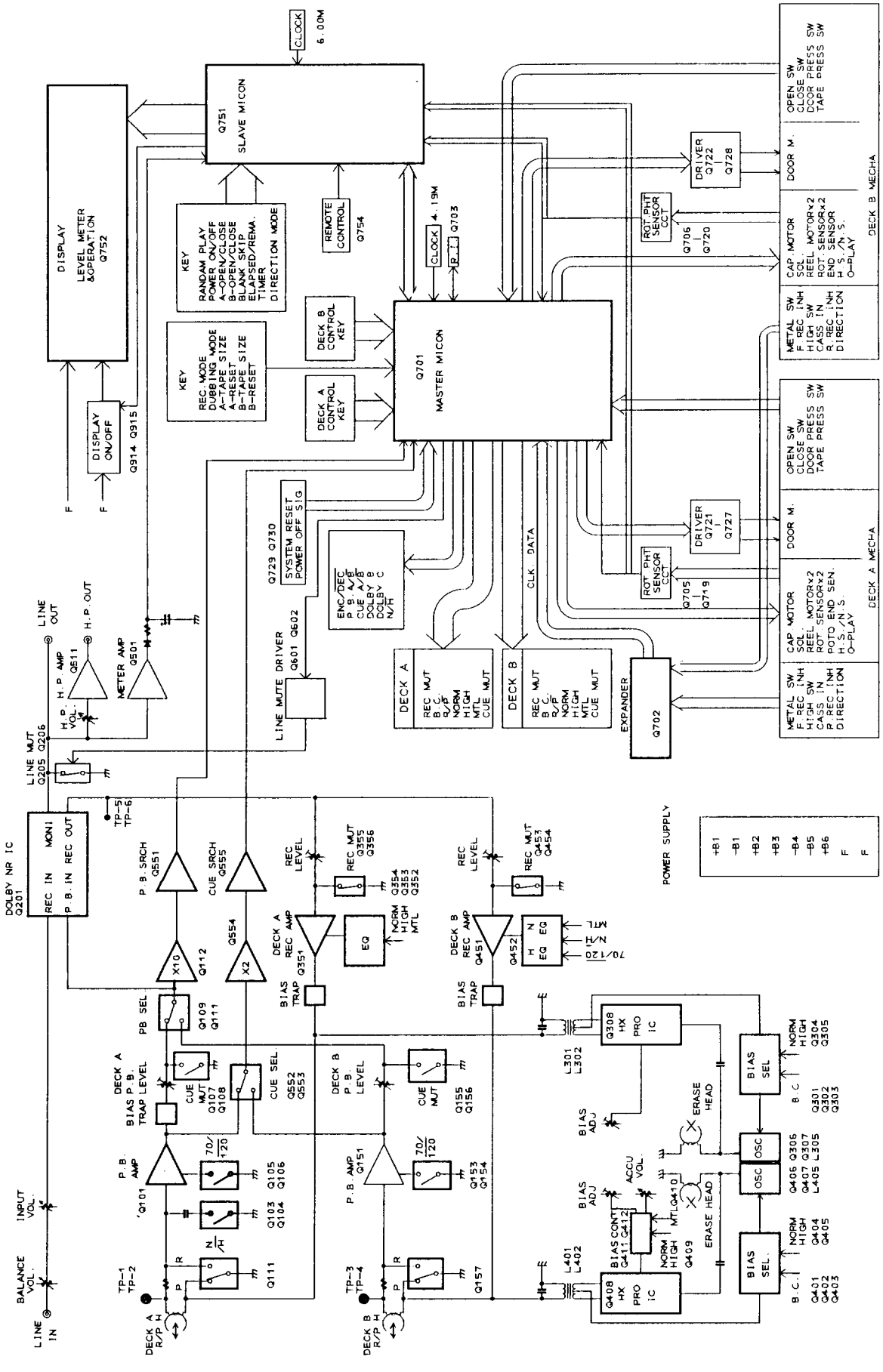
SPECIFICATIONS

Track System:	4-tracks, 2-channels
Erasing System:	AC erase
Tape Speed:	4.8 cm/sec. (1-7/8 i.p.s.) 9.6 cm/sec. (3-3/4 i.p.s.) (high speed dubbing)
Wow and Flutter:	0.065% (WRMS)
Frequency Response:	20 – 15,000Hz (Normal) (30 – 14,000Hz ±3dB) 20 – 16,000Hz (High) (30 – 15,000Hz ±dB) 20 – 17,000Hz (Metal) (30 – 16,000Hz ±3dB)
S/N Ratio:	Dolby NR off: 58dB (metal position tape) A noise reduction of 10dB above 5kHz and 5dB at 1kHz is possible with Dolby B NR. A noise reduction of 20dB at 5kHz is possible with Dolby C NR.
Input Jacks:	Line IN: 2 Input sensitivity: 60mV Input impedance: 50 kohms
Outputs:	Headphone jack: 1 Optimum load impedance: 8 to 200 ohms Line OUT: 2 Standard output level: 500mV (0dB) Optimum load impedance: over 50 kohms
Motors:	DC servo motor x 2; DC motor x 4
Heads:	REC/PB: special hard permalloy x 2; Erase head: ferrite x 2
Power Supply:	• U.K and Australian models: AC 240V, 50 Hz • U.S.A and Canadian models: AC 120 V, 60 Hz • Worldwide models: AC120 and 220 V switchable, 50/60 Hz
Power Consumption:	35 watts
Dimensions:	455(W) x 131(H) x 362(D)mm (17-15/16" x 5-3/16" x 14-1/4")
Weight:	8.2 kg. (18.1 lbs.)

Specifications and external appearance are subject to change without notice because of product improvements.

ONKYO®
AUDIO COMPONENTS

BLOCK DIAGRAM



CIRCUIT DESCRIPTION

POWER GLIDE LOADING

For the operation of this function, switch circuits are available as follows;

1. OPEN SW (Mecha. Drwg. 66: Upper 101)
2. CLOSE SW (Mecha. Drwg. 66: Lower 100)
3. DOOR PRESS SW (Mecha. Drwg. 68: Appx. 101
4. HALF PRESS SW (Mecha. Drwg. 67: Appx. 101)
5. OPEN/CLOSE SW (Front panel)

1. OPEN SW

   The Loading Motor is to rotate, while operating OPEN, un til turned ON this SW by the projection of Cam Gear.

   Then, because of this SW turned ON, the microcomputer will make a decision that OPEN operation is finished, and stop the Loading Motor.

   If not turned ON this SW within 5 sec. after started OPEN operation, the microcomputer will judge the state to be wrong and then rotate the Loading Motor backwards to make CLOSE operation.

2. CLOSE SW

   The Loading Motor is to rotate, while operating CLOSE, until turned ON this SW by the projection of Cam Gear.

   Then, because of this SW turned ON, the microcomputer will make a decision that CLOSE operation is finished, and stop the Loading Motor.

   If not turned ON this SW within 5 sec. after started CLOSE operation, the microcomputer will judge the state to be wrong and then rotate the Loading Motor backwards tomake OPEN operation.

3. DOOR PRESS SW

   Under OPEN state, by pressing DOOR manually this SW is to be ON and by letting DOOR go to the original position, this SW will be OFF. The microcomputer will detect this ON to OFF trailing and then rotate Loading Motor so as to carry out CLOSE operation.

   Such an operation, however, shall be carried out only in case where cassette is not put.

4. HALF PRESS SW

   When set the Cassette Half under OPEN condition, this SW is to be ON by pressing upper part of the Cassette Half downward. The microcomputer will detect this OFF to ON rise and then rotate Loading Motor so as to carry out CLOSE operation.

TEST MODE

1. By connecting FT Terminal with GND, TEST MODE is to be set up. This operation is to be carried out when adjusting HIGH SPEED.

   At FT Mode, by pressing FWD Button twice continuously, high speed will be set up and, by pressing it again, normal speed will be reset.

2. In order to release TEST MODE, plug off AC cord first and then plug it in again to be reset.

INPUT EXPANDER (M66007P)

OPERATION

(1) When turned power on, LE/D is to be the mode with indefinite Input/Output. And then, after detecting the trailing edge of CLK 13 times and more, LE/D is to be set as Input Mode.

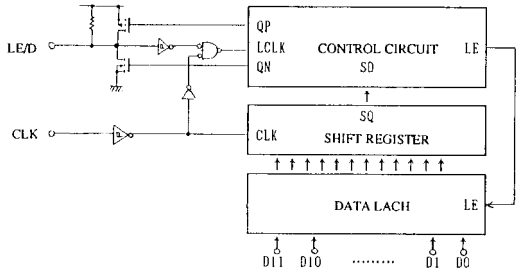
(2) The access will be started under Input Mode for LE/D with trailing edge from "H" to "L" of LE/D when CLK at "H", and the states from D0 to D11 will be latched.

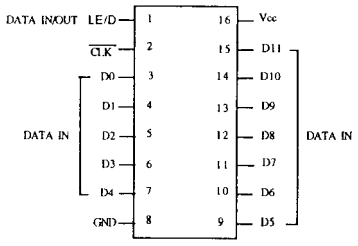
(3) Then, LE/D is to be changed into Output Mode from Input and then "L" will be output.

(4) With trailing edge of CLK from "H" to "L", the data latched in foregoing (2) will be shifted in order and then output in order from D0 to D11 by LE/D.

(5) After output 12-bit data for D0 ~ D11, the 13th trailing edge of CLK will change LE/D into Input Mode to be ready for the next access.

M66007P (12 BIT INPUT EXPANDER)





ADJUSTMENT PROCEDURES

PRECAUTIONS

1. Before adjustment, clean the following parts with an alchol moinstend swab.
   * record/playback head
   * erase head
   * pinch roller
   * capstan
2. Do not use magnetized screwdriver for adjustments.
3. Demagnetize. record/playback head with a head demagnetizer.

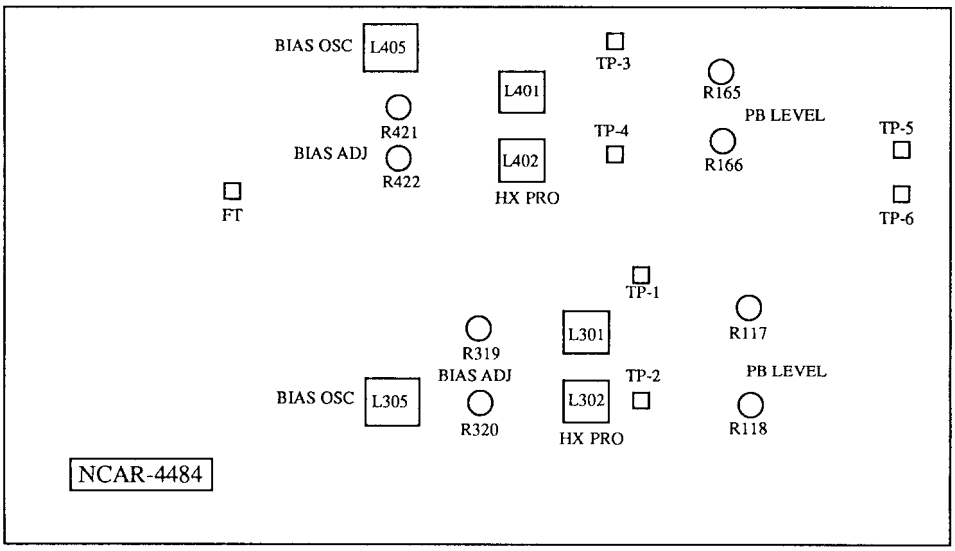
TEST EQUIPMENT/TOOLS REQUIRED:

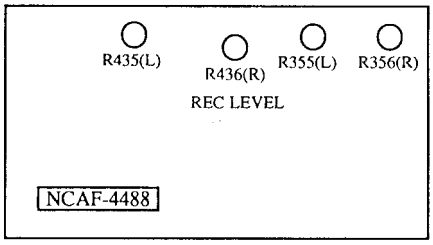
Audio oscillator
Digital frequency counter
Oscilloscope
Attenuator
AC voltmeter
Non-magnetic screw driver
Test tapes
TCC-153 : 10 KHz, – 5dB
MTT-111 : 3 kHz, – 0dB
MTT-150 : Dolby level calibration 400Hz, tone 200nWb/m

Item		Connection of instrument	Line input	Test tape	Mode	Output indicator	Adjustment point	Adjust	Remaks
1	Tape speed	Frequency counter to LINE output terminal		MTT-111	PB	Frequency counter	Semi-fixed on the mechanism P.C.B.	DECK-A 3045±5Hz 6010±10Hz DECK-B 3030±5Hz 6010±10Hz	High speed connect the FT terminal to GND push the FWD button twice continuously
2	Head azimuth	AC voltmeter and oscilloscope to LINE output terminal		TCC-153	PB	AC voltmeter	Haed azimuth screw	Maximum and same phase at channels L and R	fig-1
3	Play-back level	AC voltmeter to terminals TP-5 and TP-6		MTT-150	PB	AC voltmeter	T1 R117 (Ch.L) T1 R118 (Ch.R) T2 R165 (Ch.L) T2 R166 (Ch.R)	300mV	
4	OSC Block	Frequency counter to P301 (DECK-A), P401 (DECK-B) read loose coupling		T1, T2 METAL TAPE XS C-60	T1, T2 REC	Frequency counter	DECK-A L-305 DECK-B L-405	105KHz (±1KHz)	
5	HX-PRO	AC voltmeter to TP1, 2 (DECK-A) TP3, 4 (DECK-B)		METAL TAPE XS C-60	REC	AC voltmeter	DECK-A L-301, L-302 DECK-B L-401, L-402	Maximum	DECK-A R-319, R-320 DECK-B R-421, R-422 maximum
6	Bias current	fig-2	1KHz, –20dB and 12kHz, –20dB	XL-II C-90	REC/PB	AC voltmeter	T1 R319 (Ch.L) T1 R320 (Ch.R) T2 R421 (Ch.L) T2 R422 (Ch.R)	Same level at REC/PB	Input VR maximum.
7	Record level	fig-2	1KHz	XL-II C-90	REC	AC voltmeter	Attenutor or AF OSC output	350mV	
					REC/PB	AC voltmeter	T1 R355 (Ch.L) T1 R356 (Ch.R) T2 R435 (Ch.L) T2 R436 (Ch.R)	Same level at REC/PB	

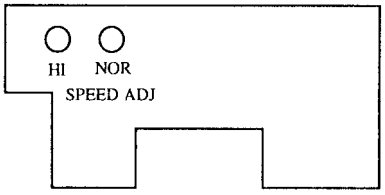
Blank tape
NORMAL UD-1 C-90
HIGH .....XL-II C-90
METAL ..... MS C-60
PLAY torque ..... 30~70g/cm
FF.REW torque ..... 90~180g/cm
Back tention ..... 2~6g/cm

ADJUSTMENT POINT





DECK MECHA PC BOARD



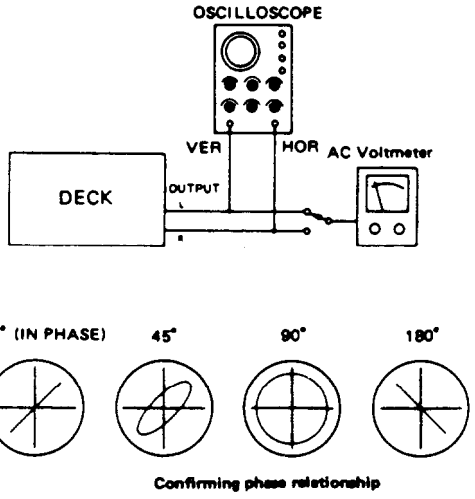


fig-1

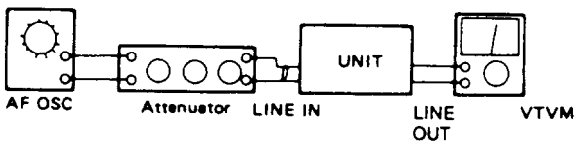
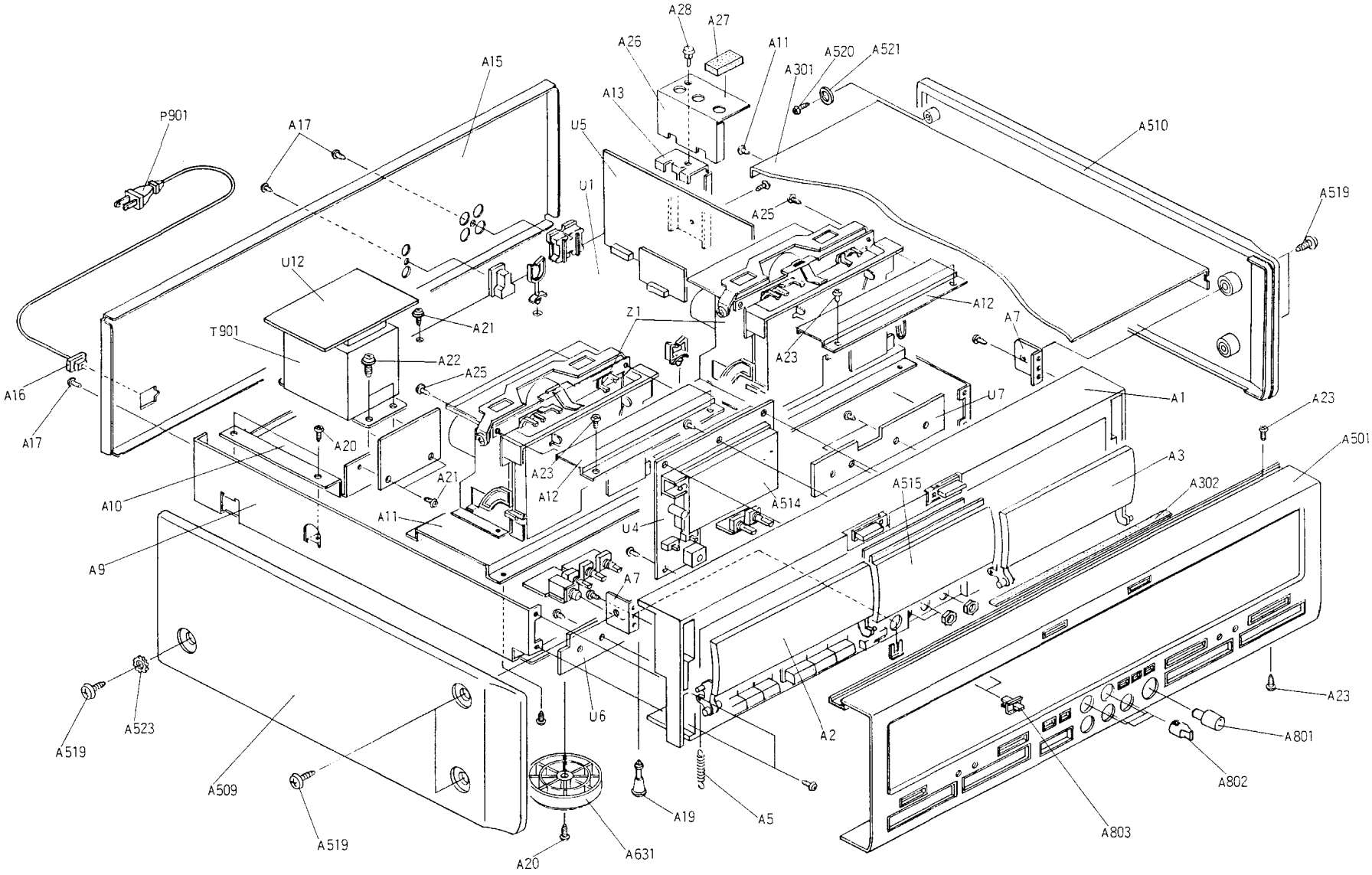


fig-2

CHASSIS-EXPLODED VIEW



CHASSIS-EXPLODED VIEW PARTS LIST

REF. NO.	PARTS NO.	DESCRIPTION
A1	27110707A	FRONT BRACKET AS
A2	28148266A	DOOR AS (A)
A3	28148267A	DOOR AS (B)
A5	27180517	SPRING (LID)
A7	27141496A	BRACKET (S)
A9	27100247-1A	CHASSIS
A10	27130695	BRACKET (PT)
A11	27130690B	BRACKET (B)
A12	27141542A	BRACKET (T)
A13	27141544B	BRACKET (PC)
A15	27121583	BACK PANEL [D]
	27121584	BACK PANEL [P]
	27121586	BACK PANEL [W]
A16	27300750	BUSHING (CORD)
A17	801230	TAPPING SCREW 3STS+8BQBC
A18	27190480	HOLDER
A19	27190657	HOLDER
A20	834430088	TAP-TIGHT SCREW 3TTS+8BBC
A21	831130088	TAP-TIGHT SCREW 3TTW+8B
A22	830440069	TAP-TIGHT SCREW 4TTC+6CBC
A23	833430080	TAP-TIGHT SCREW 3TTP+8PBC
A25	834430068	TAP-TIGHT SCREW 3TTS+6BBC
A26	28175198	SHIELD PLATE
A27	28141209	CUSHION
A28	880016	PLASTIC RIVET
A301	128184490A	TOP COVER
A302	28140837	CUSHION 250×10×.9t
A501	1N130701K	FRONT PANEL
A505	28191629A	CLEAR PLATE (RE)
A509	28185371	SIDE BOARD (L)
	28185377	SIDE BOARD (L) [N]
A510	28185372	SIDE BOARD (R)
	28185378	SIDE BOARD (R) [N]
A512	28175190	SHIELD PLATE
A514	28133285A	BACK PLATE
A515	28191630	CLEAR PLATE
A519	837440169	TAP-TIGHT SCREW 4TTT+16CB
A520	834440088	TAP-TIGHT SCREW 4TTS+8BBC
A521	87644012	WASHER W4×12FBC
A523	87314008	TOOTH LOCK WASHER M-4B
A631	27175254	LEG AS
A801	28324620	KNOB (INP)
A802	28324621	KNOB (BAL)
A803	28324625A	KNOB (DOL)

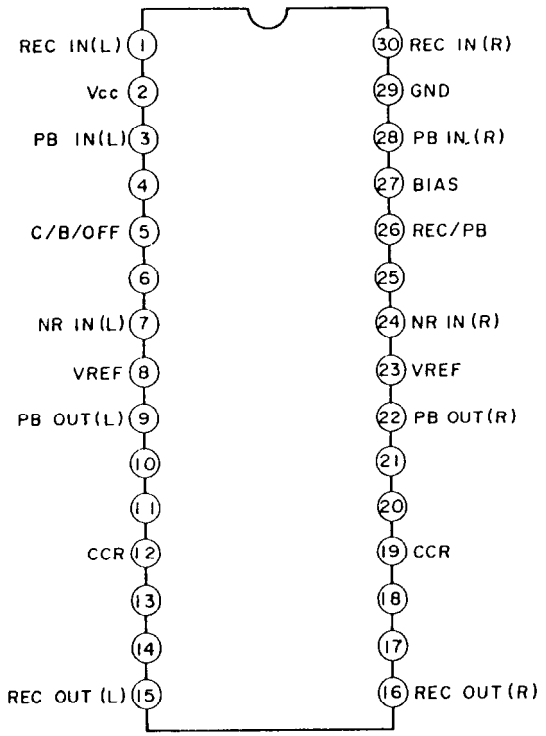
REF. NO.	PARTS NO.	DESCRIPTION
P901	⚠ 253146	AC CORD AS-UC6-#18 [D]
	⚠ 253149	AC CORD AS-CEE [P/W]
T901	⚠ 2300804	NPT-1145D [D]
	⚠ 2300805	NPT-1145P [P]
	⚠ 2300806	NPT-1145DG [W]
U1	1N130584-1	NASR-4484-1
U2	1N130585-1	NAETC-4485-1
U4	1N130587-1	NADIS-4487-1
U5	1N130588-1	NAAF-4488-1
U6	1N130589-1	NASW-4489-1
U7	1N130590-1	NASW-4490-1
U8	1N130591-1	NAETC-4491-1
U9	1N130592-1	NAETC-4492-1
U10	1N130593-1	NAETC-4493-1
U11	1N130594-1	NAETC-4494-1
U12	1N130595-1	NAETC-4495-1
U14	1N130565-1	NAETC-4565-1
	1N130599-1	NASW-4499-1 [W]
Z1	244167	CASSETTE DECK MECHANISM (DECK-A, DECK-B)
Z2	24611487A	SHIELD PLATE
Z3	801437	TAPPING SCREW

NOTE [D] Only 120V model
[P] Only 230V model
[W] Only worldwide model
[N] Only U.S.A. model

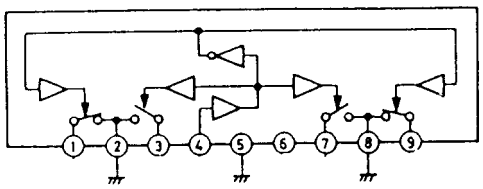
NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

IC BLOCK DIAGRAM

HA12142NT (DOLBY NR)



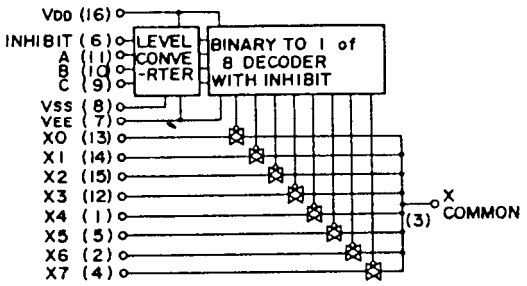
μPC 1330HA (REC/PB SW)



μPC1330HA

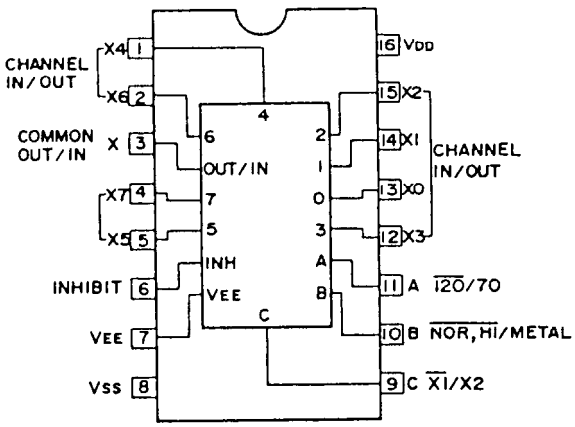
Pin No.	Function
1, 9	PB. signal
2	GND
3, 7	REC signal
4	REC/PB SW control
5	GND
6	+B
8	GND

4051B (ANALOG SW)



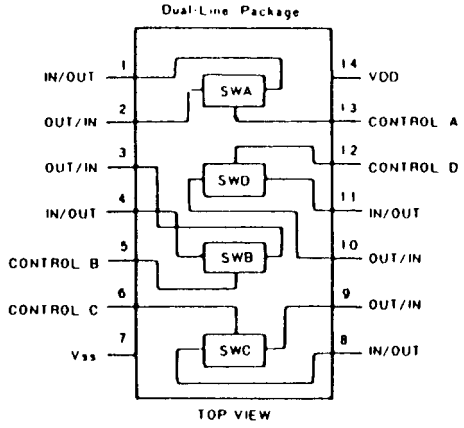
INHIBIT	A(11)	B(10)	C(9)	ON SWITCH
L	L	L	L	XO (13)
L	H	L	L	X1 (14)
L	L	H	L	X2 (15)
L	H	H	L	X3 (12)
L	L	L	H	X4 (1)
L	H	L	H	X5 (5)
L	L	H	H	X6 (2)
L	H	H	H	X7 (4)
H	X	X	X	NONE

X: Don't Care

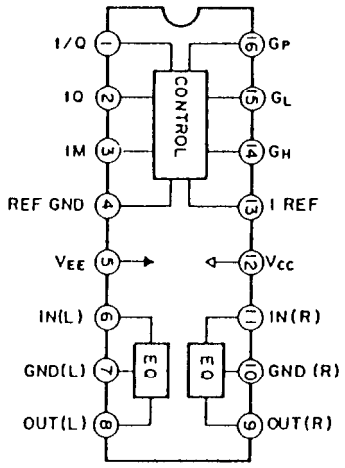


IC BLOCK DIAGRAM

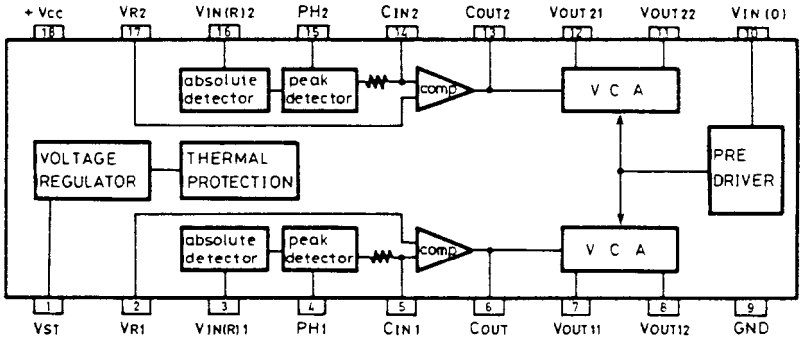
4066 (ANALOG SW)



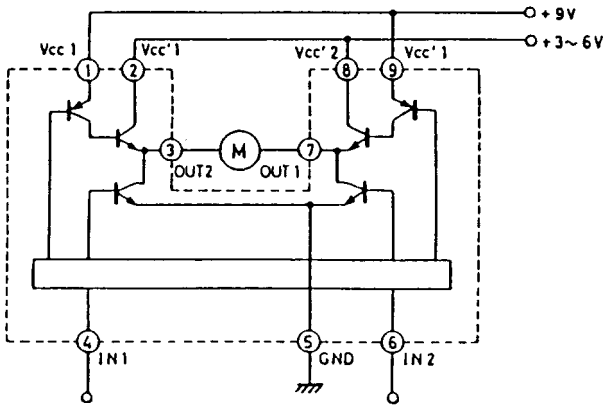
CXA1198A (REC EQ)



μPC1297CA (HX PRO)

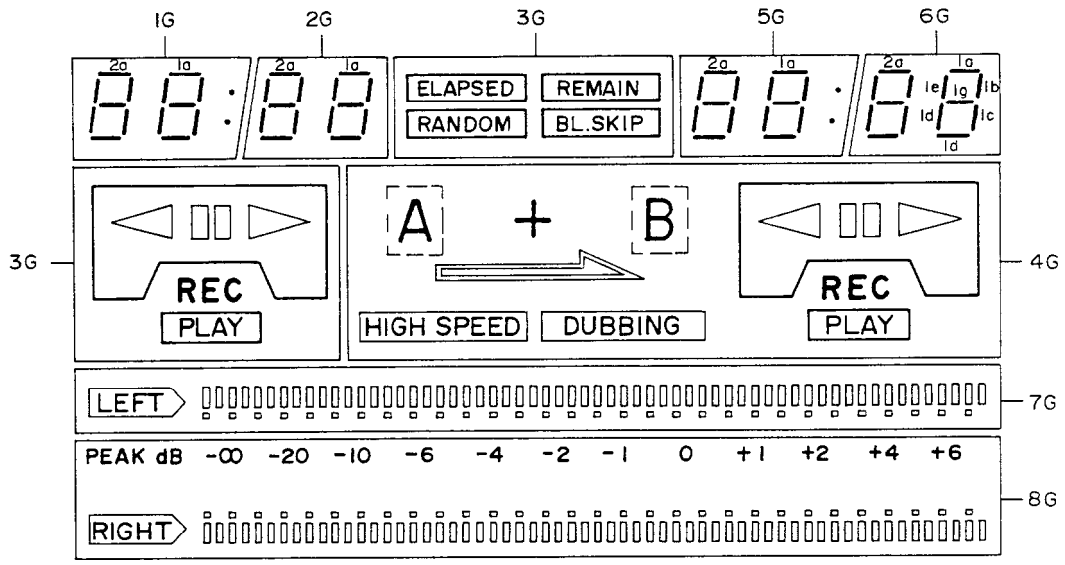


M54544AL (MOTOR DRIVE)



INPUT		OUTPUT		Remark
# 4	# 6	# 3	# 7	
L	L	OFF	OFF	———
H	L	H	L	FWD
L	H	L	H	REV
H	H	L	L	Brake

BJ072GK (DISPLAY TUBE)



PIN CONNECTION

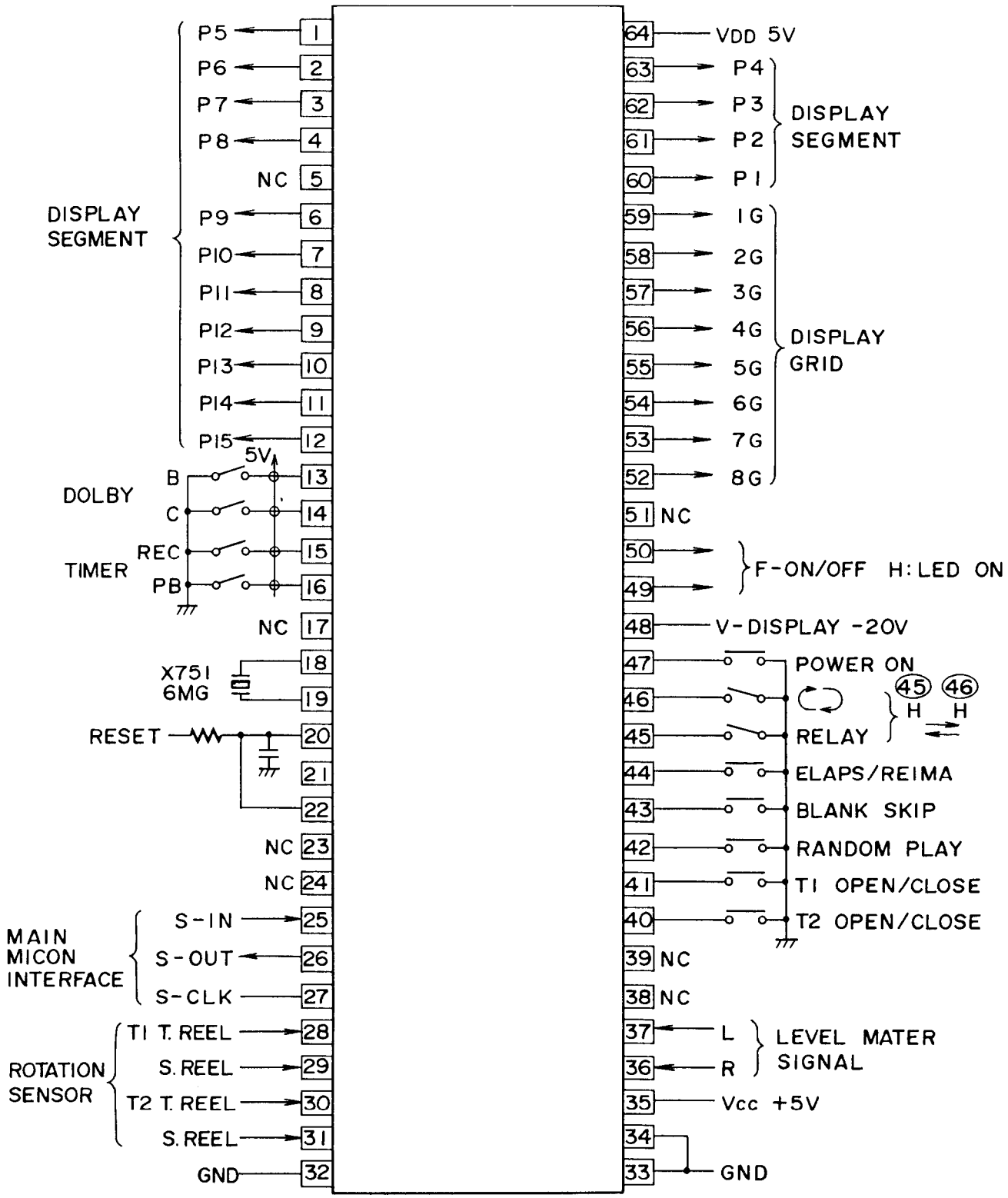
PIN NO.	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F2	F2	F2	NP	NP	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NC	NC	NC	NC	NC	NC	1G	2G	3G	4G	5G	6G	7G	8G	NP	NP	F1	F1	F1

NOTE 1) F1, F2 --- Filament
2) NP ------ No pin
3) NC ------ No connection
4) 1G~8G --- Grid

ANODE CONNECTION

	1G	2G	3G	4G	5G	6G	7G	8G
P1	° °	-	ELAPSED	+	° °	-	B1	B1
P2	1a	1a	REMAIN	→	1a	1a	B2	B2
P3	1b	1b	RANDOM	HIGH SPEED	1b	1b	B3	B3
P4	1c	1c	BL.SKIP	DUBBING	1c	1c	B4	B4
P5	1d	1d	□□	□□	1d	1d	B5	B5
P6	1e	1e	▷	▷	1e	1e	B6	B6
P7	1f	1f	◁	◁	1f	1f	B7	B7
P8	1g	1g	⊓	⊓	1g	1g	B8	B8
P9	2a	2a	REC	REC	2a	2a	B9	B9
P10	2b	2b	PLAY	PLAY	2b	2b	B10	B10
P11	2c	2c	-	-	2c	2c	B11	B11
P12	2d	2d	-	-	2d	2d	-	-
P13	2e	2e	-	-	2e	2e	-	-
P14	2f	2f	-	-	2f	2f	-	-
P15	2g	2g	-	-	2g	2g	-	-

MICROCOMPUTER (TMP47C662N)



PRINTED CIRCUIT BOARD PARTS LIST

NAAR-4484-1

CIRCUIT NO.	PART NO.	DESCRIPTION
	Ics	
Q101	222956	NJM-2068D-D
Q109	222840661 or	4066B or
	222933	BU-4066B
Q111	22240147	μPC1330HA
Q112	222465	NJM-4558D
Q151	222956	NJM-2068D-D
Q157	22240147	μPC1330HA
Q201	22240388	HA12142NT
Q308	222959	μPC1297CA
Q408	222959	μPC1297CA
Q501	22240368 or	M5218AL or
	222652	M5218L
Q551	222940	BA335H
Q701	22240609	HD404719A18FS
Q702	22240610	M66007P
Q727, Q728	222953	M-54544AL
Q907	222780065JRC	78M06
Q908	222790065JRC	79M06
Q910	222780055MIT	78M05
Q911, Q912	222780125MIT	78M12
	Transistors	
Q103-Q108	221281 or	DTC114YS or
	2213570	RN1207
Q110	2213570 or	RN1207 or
	221281	DTC114YS
Q153-Q156	221281 or	DTC114YS or
	2213570	RN1207
Q202-Q204	221281 or	DTC114YS or
	2213570	RN1207
Q205, Q206	2211706 or	2SD655-F or
	2211705	2SD655-E
Q207, Q208	221281 or	DTC114YS or
	2213570	RN1207
Q301	221281 or	DTC114YS or
	2213570	RN1207
Q302	2212853 or	2SB1068-K or
	2212855	2SB1068-U
Q303	2211544 or	2SC1959-Y or
	2211545	2SC1959-GR
Q304, Q305	221281 or	DTC114YS or
	2213570	RN1207
Q306, Q307	2211544 or	2SC1959-Y or
	2211545	2SC1959-GR
Q401	221281 or	DTC114YS or
	2213570	RN1207
Q402	2212853 or	2SB1068-K or
	2212855	2SB1068-U
Q403	2211544 or	2SC1959-Y or
	2211545	2SC1959-GR
Q404, Q405	221281 or	DTC114YS or
	2213570	RN1207
Q406, Q407	2211544 or	2SC1959-Y or
	2211545	2SC1959-GR
Q409-Q411	221281 or	DTC114YS or
	2213570	RN1207
Q412	2212600 or	DTA124ES or
	2213580	RN2203
Q601	2213354 or	2SA933S-R or
	2213355	2SA933S-S
Q602	221281 or	DTC114YS or
	2213570	RN1207
Q703	2212600 or	DTA124ES or
	2213580	RN2203
Q705-Q716	2213284 or	2SC1740S-R or
	2213285	2SC1740S-S
Q717-Q722	221281 or	DTC114YS or
	2213570	RN1207
Q723, Q724	2213284 or	2SC1740S-R or
	2213285	2SC1740S-S
Q725, Q726	2201285 or	2SD882-Q or
	2201286	2SD882-P
Q729	2213354 or	2SA933S-R or
	2213355	2SA933S-S
Q730	2212600 or	DTA124ES or
	2213580	RN2203
Q907	222780065JRC	78M06
Q908	222790065JRC	79M06
Q913	2213354 or	2SA933S-R or
	2213355	2SA933S-S
Q914, Q915	2211705	2SD655-E
	2211706	2SD655-F
	Diodes	
D201-D205	223163 or	1SS133 or
	223205	1SS270A
D401, D402	223163 or	1SS133 or
	223205	1SS270A
D501-D504	223163 or	1SS133 or
	223205	1SS270A
D701, D702	223163 or	1SS133 or
	223205	1SS270A
D703, D704	22380046	AM01Z
D705	223163 or	1SS133 or
	223205	1SS270A
D706	224450562	MTZ5.6B
D707-D713	223163 or	1SS133 or
	223205	1SS270A
D901-D904	22380046	AM01Z
D905	223163 or	1SS133 or
	223205	1SS270A
D906-D909	22380046	AM01Z
D911	224450391	MTZ3.9A
D912	224451803	MTZ18C
D914-D916	223163	1SS133
	223205	1SS270A
D917	224450623	MTZ6.2C
	Coils	
L101, L102	231086	NCH-2134
L201, L202	233328	NMC-6051
L301, L302	231127	NCH-4183
L303, L304	231101	NCH-2148
L305	231211	NLO-2056
L401, L402	231127	NCH-4183
L403, L404	231101	NCH-2148
L405	231211	NLO-2056
X701	3010163	CST4.1MGF
	Capacitors	
C105, C106	391942217	220μF16V, ELECT.
C121, C122	391944717	470μF16V, ELECT.
C153, C154	391942217	220μF16V, ELECT.
C161, C162	391944717	470μF16V, ELECT.
C201-C204	391980227	2.2μF50V, ELECT.
C205	391942207	22μF16V, ELECT.
C219, C220	391941007	10μF16V, ELECT.
C221, C222	391941017	100μF16V, ELECT
C223, C224	391980107	1μF50V, ELECT.
C225, C226	391942217	220μF16V, ELECT.

CIRCUIT NO.	PART NO.	DESCRIPTION
C301	391921017	100μF6.3V, ELECT.
C303	391941007	10μF16V, ELECT.
C307	370131234	0.012μF100V, APS
C309	391941007	10μF16V, ELECT.
C311	370131214	120PF100V, APS
C312	370131214	120PF100V, APS
C313, C314	370131014	100PF 100V, APS
C323, C324	391941007	10μF16V, ELECT.
C325	391980227	2.2μF50V, ELECT.
C401	391921017	100μF6.3V, ELECT.
C403	391941007	10μF16V, ELECT.
C407	370131234	0.012μF100V, APS
C409	391941007	10μF16V, ELECT.
C411	370131214	120PF100V, APS
C412	370131214	120PF100V, APS
C413, C414	370131014	100PF 100V, APS
C423, C424	391941007	10μF16V, ELECT.
C501, C502	391980337	3.3μF50V, ELECT.
C551	391980477	4.7μF50V, ELECT.
C553	391980107	1μF50V, ELECT.
C554	391984797	0.47μF50V, ELECT.
C555	391941007	10μF16V, ELECT.
C703	391941007	10μF16V, ELECT.
C705, C708	391941007	10μF16V, ELECT.
C711, C712	391980107	1μF50V, ELECT.
C713, C714	391921017	100μF6.3V, ELECT.
C715, C716	391980477	4.7μF50V, ELECT.
C720	391980107	1μF50V, ELECT.
C721, C722	391942217	220μF16V, ELECT.
C723, C724	352980476	4.7μF50V, NP.
C725	391980107	1μF50V, ELECT.
C905, C906	3933622275	2200μF35V, ELECT.
C907, C908	391980107	1μF50V, ELECT.
C913, C914	391944717	470μF16V, ELECT.
C918, C919	391941017	100μF16V, ELECT
C923	391980107	1μF50V, ELECT.
C926	391981017	100μF50V, ELECT.
C927, C928	391980477	4.7μF50V, ELECT.
C932	391961017	100μF35V, ELECT.
C929	391962207	22μF35V, ELECT.
	Resistors	
R117, R118	5210220	N06HR50KBD
R165, R166	5210220	N06HR50KBD
R319, R320	5210217	N06HR10KBD
R421, R422	5210217	N06HR10KBD
R715	49163392404	3.9KΩ×4, 1/10W
R718	49163392406	RM1/10IJ3.9KΩ×6
R719	49163392406	RM1/10IJ3.9KΩ×6
R914, R915	442520224FRS1/2 WBJ 2.2Ω	
R917	441723904F	RS2WBJ39Ω
	Plug, Socket	
P101, P102	25055136	NPLG-6P120
P201	25045338	NPJ-4PDBL189
P202, P203	25055133	NPLG-3P117
P301	25055132	NPLG-2P116
P302	25055106	NPLG-9P90
P401	25055132	NPLG-2P116
P402	25055107	NPLG-10P91
P403	25050525	NSCT-3P348
P501	25050525	NSCT-3P348
P502	25055147	NPLG-3P131
P503	25050525	NSCT-3P348
P504	25055412	NPLG-10P394
P701, P702	2002342210	NSAS-22P0365
P703, P704	2002391005	NSAS-10P0366
P705, P706	2002391410	NSAS-14P0221
P707, P708	25055148	NPLG-4P132
P709	25045330	NPJ-2PDBL184
P710, P711	25055184	NPLG-3P168
P712	25050529	NSCT-7P352
P713	25050531	NSCT-9P354
P901	25055137	NPLG-7P121
	Miscellaneous	
	27160211	RAD-68, RADIATOR
	27160211-1	RAD-68B, RADIATOR
	82143006	3P+6FN(BC), SCREW
	27141059	BRACKET

NAETC-4485-1

CIRCUIT NO.	PART NO.	DESCRIPTION
	Ics	
Q552	222840661	4066BP
Q554	222465	NJM4558D
Q555	222940	BA335H
	Transistoer	
Q553	221281 or 2213570	DTC114YS or rn1207
	Capacitors	
C571	391980477	4.7μF50V, ELECT.
C573, C574	391984797	0.47μF50V, ELECT.
C575	391941007	10μF16V, ELECT.
C578, C579	391941007	10μF16V, ELECT.
	Socket	
P705A	25050678	NSCT-10P482

NADIS-4487-1

CIRCUIT NO.	PART NO.	DESCRIPTION
	Ics	
Q751	22240611	TMP47C662N
Q754	24130003	GP1U50XS
	Display tube	
Q752	212113	BJ072GK
	Transistor	
Q753	221281 or 2213570	DTC114YS or RN1207
	LED	
D751	225259	SEL2910A
	Xtal	
X751	3010149	CST6.00MGW
	Resistor	
R801	49163392404	RM1/10IJ3.9k×4
R803	49163392408	RM1/10IJ3.9k×8
	Switch	
S723-S726	25035548	NPS-111-S510
S727, S728	25065459	NSS-13163
S730, S731	25035548	NPS-111-S510
	Holder	
	27190890	HOLDER(FL)

NAAF-4488-1

CIRCUIT NO.	PART NO.	DESCRIPTION
	Ics	
Q351	22240267	CXA1198A
Q451	22240267	CXA1198A
Q452	222840511	TC4051B
	Transistors	
Q352-Q354	221281 or	DTC114YS or

CIRCUIT NO.	PART NO.	DESCRIPTION
	2213570	RN1207
Q355, Q356	2211706 or	2SD655-F or
	2211705	2SD655-E
Q453, Q454	2211706 or	2SD655-F or
	2211705	2SD655-E
	Diode	
D351-D353	223163 or	1SS133 or
	223205	1SS270A
D451	223163 or	1SS133 or
	223205	1SS270A
	Capacitors	
C351, C352	391980107	1μF50V, ELECT.
C353-C356	391980477	4.7μF50V, ELECT.
C451, C452	391980107	1μF50V, ELECT.
C453, C457	391980477	4.7μF50V, ELECT.
C459, C460	391941007	10μF16V, ELECT.
	Resistor	
R355, R356	5210240	N06HR10kBE
R435, R436	5210240	N06HR10kBE
	Socket	
P302A	25050461	NSCT-10P566
P402A	25050460	NSCT-9P565

NASW-4489-1

CIRCUIT NO.	PART NO.	DESCRIPTION
	Switchs	
S701-S710	25035548	NPS-111-S510
S732	25035548	NPS-111-S510
	Socket	
P710A	2000519	NAAS-6P475

NASW-4490-1

CIRCUIT NO.	PART NO.	DESCRIPTION
	Switch	
S711-S722	25035548	NPS-111-S510
S733	25035548	NPS-111-S510

NAETC-4491-1

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistor	
R203	5104307	N09RLC250KW20, VR.
	Socket	
P202A	2000804	NSAS-6P760

NAETC-4492-1

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistor	
R204	5104308	N14RGL50KA20Z, VR.
	Socket	
P203A	2000931	NSAS-6P884

NAETC-4493-1

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistor	
R418	5104309	N09RLC5KB20, VR.
	Switch	
S729	25030355	NRSF-123-20SBM

NAETC-4494-1

CIRCUIT NO.	PART NO.	DESCRIPTION
	Ic	
Q511	22240396	M5218AP
	Capcitors	
C505, C506	391941007	10μF16V, ELECT.
C509, C510	391941007	10μF16V, ELECT.
	Resistor	
R513	5104310	N09RGL50KA20
	Jack	
P504	25045221	HLJ0540-01-410
	Socket	
P502A	2009990218	NSAS-6P0319

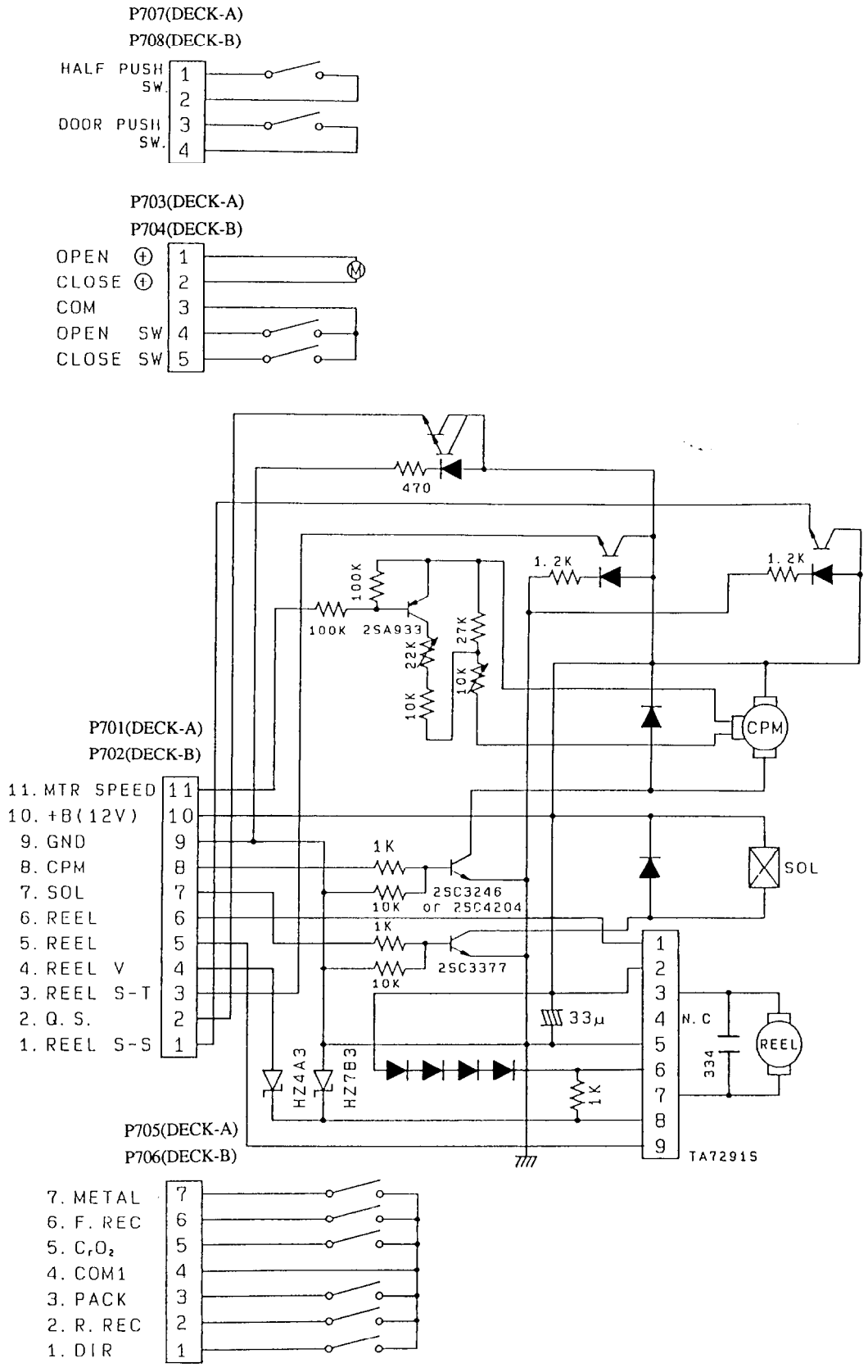
NAETC-4495-1

CIRCUIT NO.	PART NO.	DESCRIPTION
	Socket	
P901A	2009990252	NSAS-7P-0367

NASW-4499-1

CIRCUIT NO.	PART NO.	DESCRIPTION
	Switch	
S901	25065437	NSS-22157P

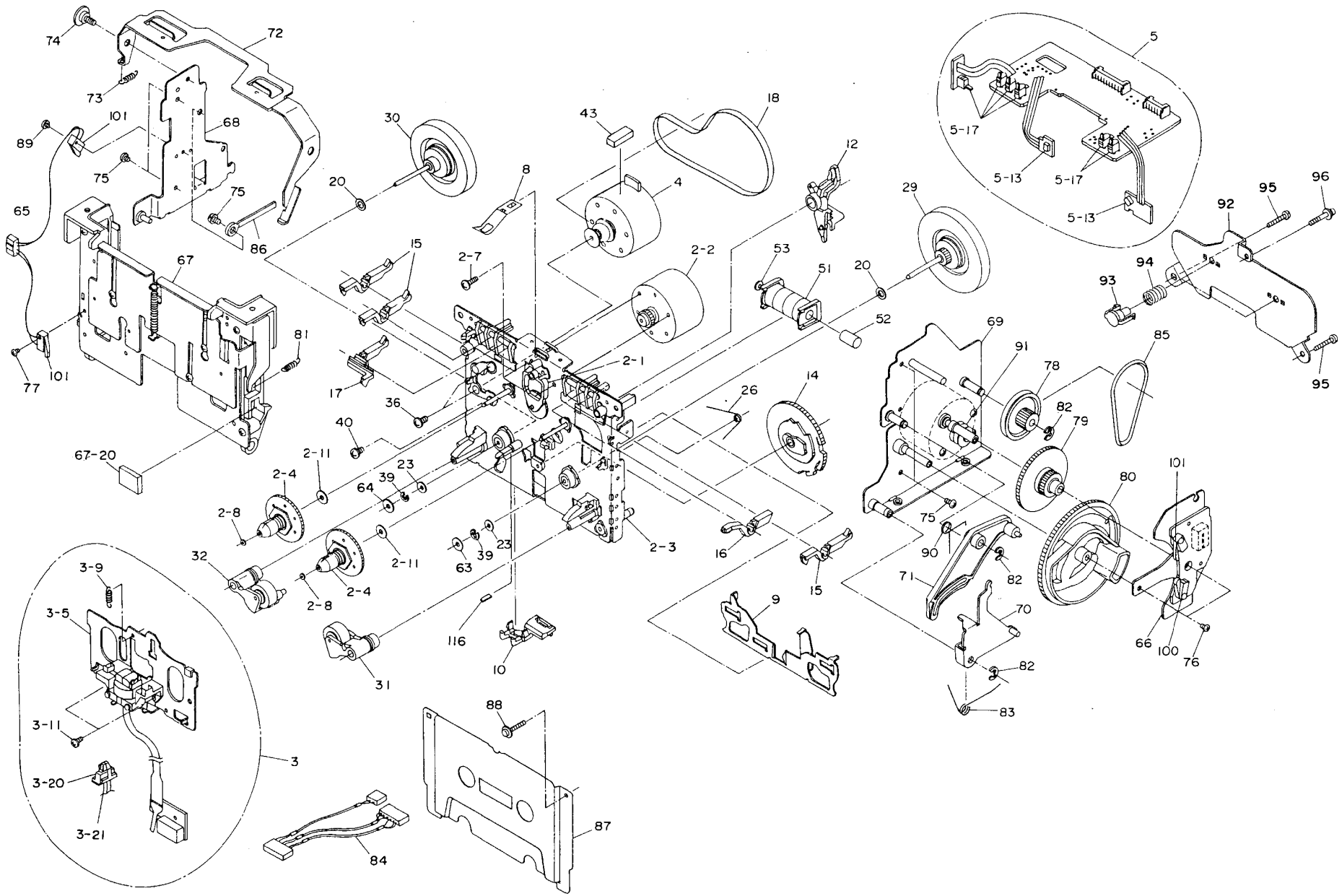
MECHANISM CONNECTION DIAGRAM



TAPE MECHANISM PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
2-1	24602482	IDLER AS
2-2	24601245	REEL MOTOR
2-3	24611498	BASE AS (CHASSIS)
2-4	24602483	BASE AS (REEL)
2-7	24609032	PAN HEAD SCREW 2.6×6.4ZN
2-8	24611177	PLASTIC WASHER 1.7×3.2 ×.25
2-11	24611175	PLASTIC WASHER
3	24600091	HEAD PLATE AS
3-5	24611493	BASE (HEAD)
3-9	24605711	SPRING
3-11	833120059	TAPPING SCREW 2×5ZN
3-20	24606465	PHOTO REFLECTER, SPI-320-B
3-21	24611500	LEAD WIRE (QS)
4	24601252	MAIN MOTOR AS
5	24606498	P.C.B. AS (CONTROL)
5-13	24606494	SG-107F3
5-17	24606271	PUSH SWITCH
8	24605739	SPRING
9	24611384A	SLIDE PLATE
10	24611385	LEAD HOLDER
12	24607101	ARM (PLAY)
14	24602550	CAM GEAR
15	24603365A	LEVER (REC)
16	24603387	LEVER (PAC) P
17	24603367	LEVER (METAL) L
18	24602486	MAIN BELT
20	24611041	PLASTIC WASHER 2.6×0.25
23	24610841	PLASTIC WASHER 2.6×4.7×.5
26	24605716	SPRING
29	24602487	FLYWHEEL AS
30	24602528	FLYWHEEL AS
31	24602414C	PINCH ROLLER AS (R)
32	24602421C	PINCH ROLLER AS
36	24609001	PAN HEAD SCREW SW2.6×5ZN
39	8930151	E WASHER 1.5S
40	838130080	WAVE SCREW 3×8
43	24611488	CUSHION (HOLDER)
51	24606333	SOLENOID COIL AS
52	24606332A	CORE
53	24606331	PLANGER
63	24611188A	WASHER (OIL SEAL)
64	24610844	WASHER 1.9×5×0.25
65	24606497	BASE AS (SW)
66	24606449	BASE AS (SW)
67	24611528	PLATE (HOLD BLOCK)
67-20	24611529	HOLDER CUSHION
68	24611490	PLATE AS (HOLDER)
69	24611491	PLATE AS (HOLDER)
70	24603388	LEVER AS (PLAY)
71	24603389	LEVER AS (PLAY)
72	24603390	EJECT LEVER
73	24605758	SPEING (EJECT)
74	24609048	SCREW
75	833126049	TAP-TIGHT SCREW 2.6TTP+4C
76	833120039	PAN HEAD SCREW TT2.0×3ZN
77	838120130	WAVE SCREW 2×13
78	24602535	GEAR (A)
79	24602536	GEAR (B)
80	24602537	CAM GEAR
81	24605769	SPRING (LEVER)
82	893030	E WASHER 3
83	24605760	SPRING (DOOR)
84	24606496	WIRE CONNECTOR (R/P, E)
85	24602538	BELT
86	24611323	LUG
87	24611527	BACK PLATE (CASSETTE)
88	24609049	TAP-TIGHT SCREW
89	24609058	PAN HEAD SCREW TT2.0×8ZN
90	24605761	SPRING (SLIDER)
93	24611504	THRUST WASHER
94	24605763	SPRING (THRUST)
95	838126080	SCREW 2.6×8
96	24609042	S-TIGHT SCREW M2.6×25
100	24606453	SWITCH SPPB21
101	24606454	SWITCH SOOB22
116	24611499	REFLECTER

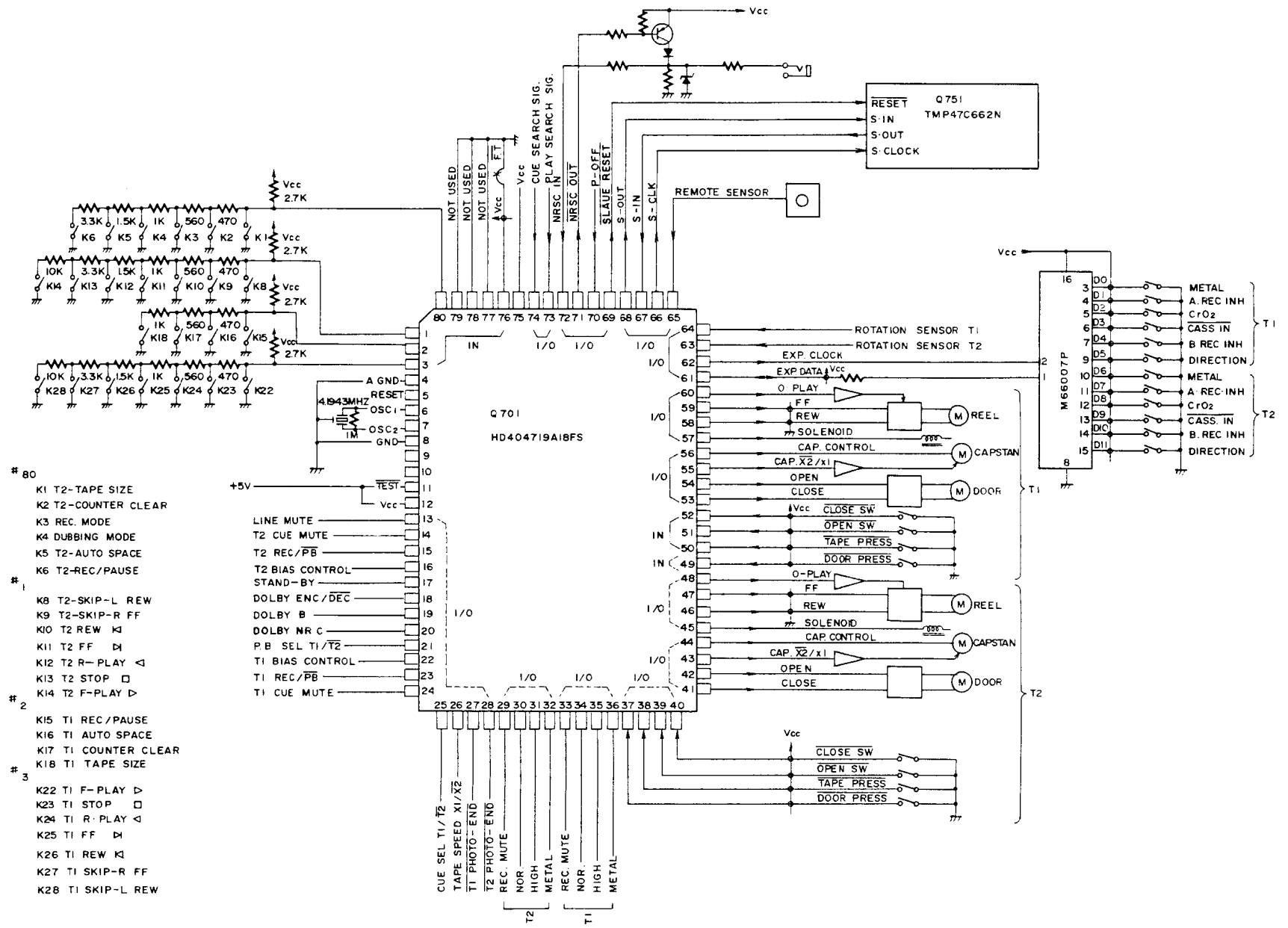
TAPE MECHANISM-EXPLODED VIEW



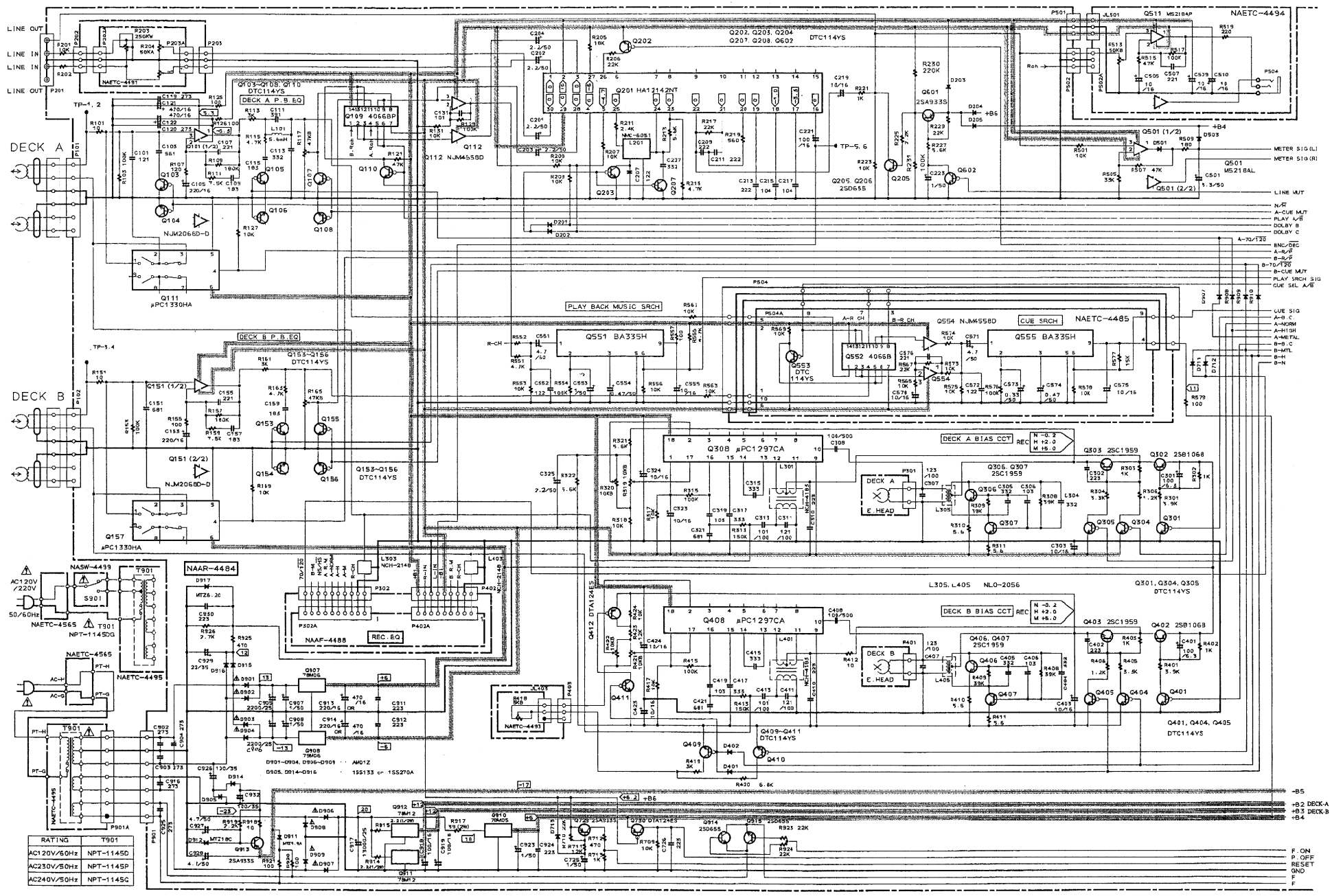
MICROCOMPUTER TERMINAL DESCRIPTION

NO.	NAME	IN/OUT	FUNCTION	NO.	NAME	IN/OUT	FUNCTION
1~3	AN5~AN7	IN	Key input	42	T2 OPEN	OUT	Door motor drive for open
4	AGND			43	T2 CAPSTAN X1/X2	OUT	Capstan motor NOR/HI selection
5	RESET		System reset for microcomputer	44	T2 CAPSTAN CONTROL	OUT	Capstan motor drive
6, 7	OSC1, OSC2		Clock 4.19MHz	45	T2 SOLENOID	OUT	Solenoid drive
8	GND			46	T2 REEL-REW	OUT	Reel motor drive for REW
9, 10	CL1, CL2			47	T2 REEL-FF	OUT	Reel motor drive for FF
11	TEST			48	T2 O-PLAY	OUT	Reel motor drive for PLAY
12	V_{CC}		Power source terminal +5V	49	T1 DOOR PRESS	IN	Door press signal detection
13	LINE MUTE	OUT	Line muting	50	T1 TAPE PRESS	IN	Tape press signal detection
14	T2 CUE MUTE	OUT	Cue muting	51	T1 OPEN SW	IN	Door open detection
15	T2 REC/PB	OUT	T2 REC/PB selection	52	T1 CLOSE SW	IN	Door close detection
16	T2 BIAS CONTROL	OUT	T2 bias control	53	T1 CLOSE	OUT	Door motor drive for close
17	STAND BY			54	T1 OPEN	OUT	Door motor drive for open
18	DOLBY ENC/DEC	OUT	Dolby	55	T1 CAPSTAN X1/X2	OUT	Capstan motor NOR/HI selection
19	DOLBY B	OUT	H: Dolby B tayp	56	T1 CAPSTAN CONTROL	OUT	Capstan motor drive
20	DOLBY C	OUT	H: Dolby C tayp	57	T1 SOLENOID	OUT	Solenoid drive
21	PB SEL. T1/T2	OUT	T1/T2 playback selection	58	T1 REEL-REW	OUT	Reel motor drive for REW
22	T1 BIAS CONTROL	OUT	T1 bias control	59	T1 REEL-FF	OUT	Reel motor drive for FF
23	T1 REC/PB	OUT	T1 REC/PB selection	60	T1 O-PLAY	OUT	Reel motor drive for PLAY
24	T1 CUE MUTE	OUT	Cue muting	61	EXP. DATA	IN/OUT	EXP IC Q702 Data
25	CUE SEL. T1/T2	OUT	T1/T2 Cue selection	62	EXP. CLOCK	OUT	EXP IC Q702 Clock
26	TAPE SPEED X1/X2	OUT	Tape speed NOR/Hi selection	63	T2 ROTATION SENSOR	IN	Reel rotation detection
27	T1 PHOTO-END	IN	Tape end detection	64	T1 ROTATION SENSOR	IN	Reel rotation detection
28	T2 PHOTO-END	IN	Tape end detection	65	REMOTE SENSOR	IN	Remote control signal input
29	T2 REC. MUTE	OUT	Recording muting : H	66	S-CLOCK	OUT	Slave micon clock
30	T2 NOR	OUT	Normal tape : H	67	S-IN	IN	Slave micom data in
31	T2 HIGH	OUT	High tape : H	68	S-OUT	OUT	Slave micom data out
32	T2 METAL	OUT	Metal tape : H	69	SLAVE-RESET	OUT	Slave micon reset
33	T1 REC. MUTE	OUT	Recording muting : H	70	P-OFF	IN	Power off reset
34	T1 NOR	OUT	Normal tape : H	71	NRSC OUT	OUT	Remote control
35	T1 HIGH	OUT	High tape : H	72	NRSC IN	IN	Remote control
36	T1 METAL	OUT	Metal tape : H	73	PLAY SEARCH SIG.	IN	
37	T2 DOOR PRESS	IN	Door press signal detection	74	CUE SEARCH SIG.	IN	
38	T2 TAPE PRESS	IN	Tape press signal detection	75	AV_{CC}		
39	T2 OPEN SW	IN	Door open detection	76	F.T		
40	T2 CLOSE SW	IN	Door close detection	77~79	AN1~AN3		
41	T2 CLOSE	OUT	Door motor drive for close	80	AN4	IN	Key input

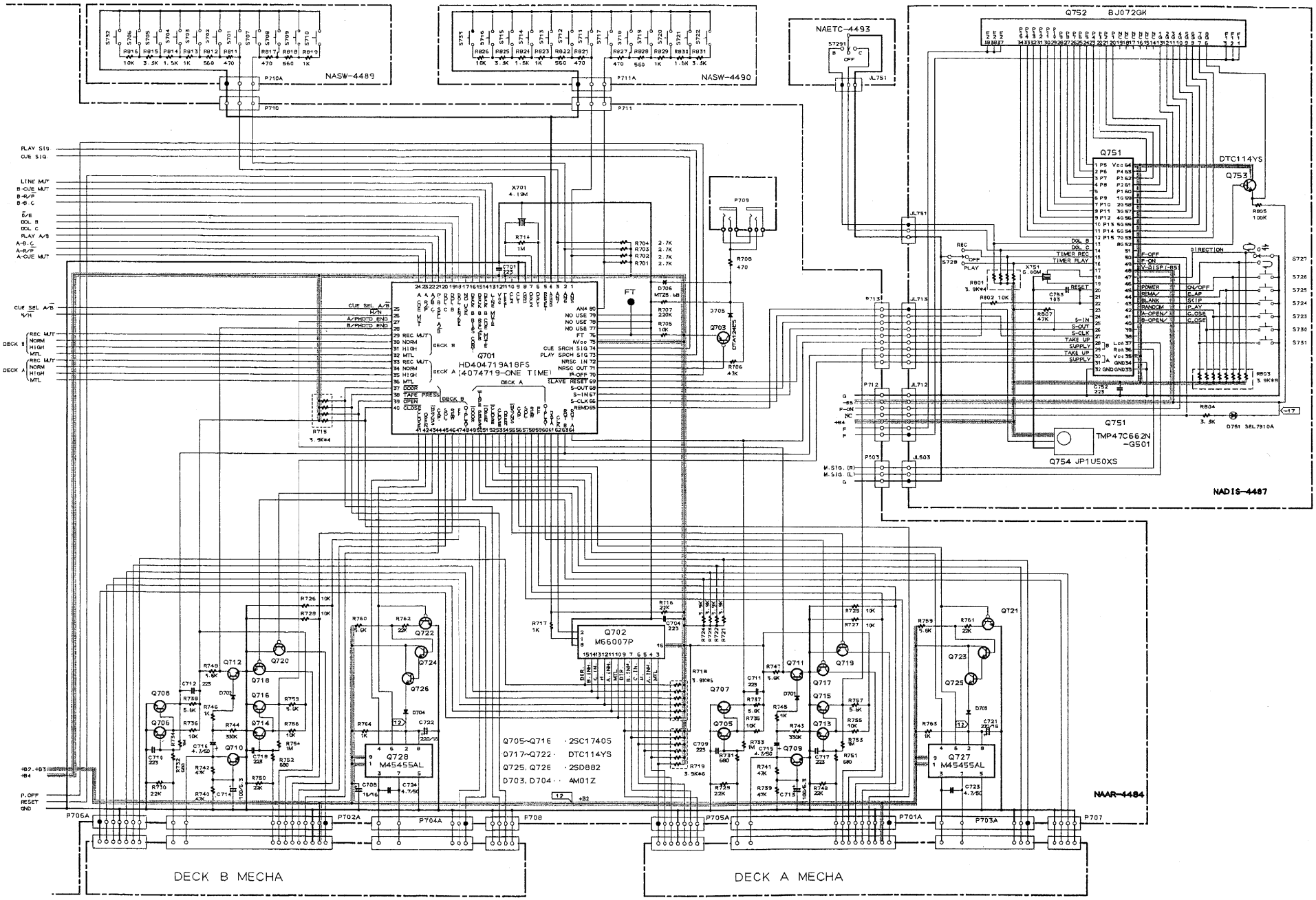
MICROCOMPUTER (HD404719A18FS)



DIAGRAM

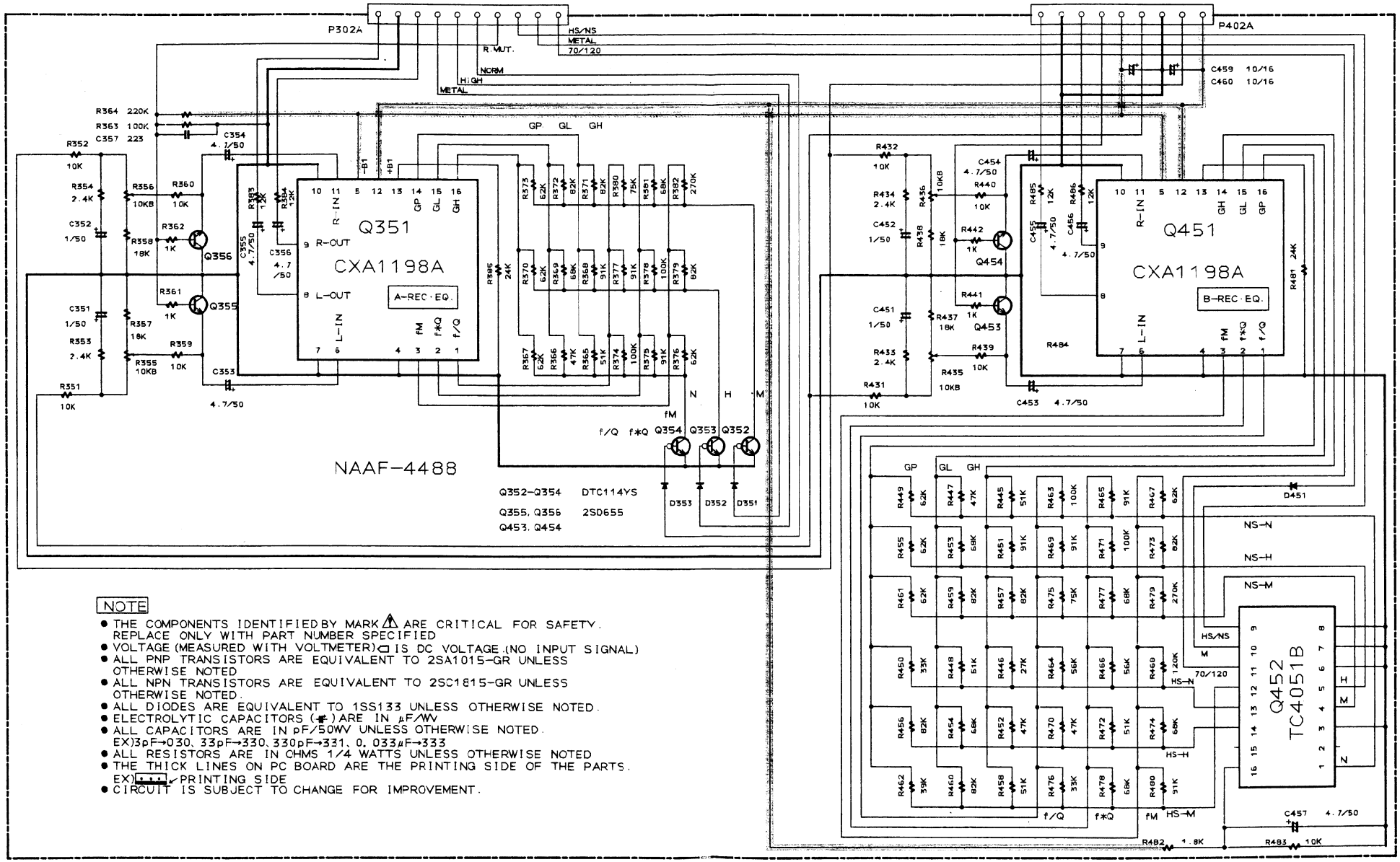


RATING	T901
AC120V/60Hz	NPT-1145D
AC230V/50Hz	NPT-1145P
AC240V/50Hz	NPT-1145G


NASW-4489
NASW-4490
NAETC-4493
NADIS-4487
NAAR-4484
Q752 BJ072GK
Q751
Q754 JP1U50XS
TMP47C662N -G501
Q701 HD404719A18FS (407419-ONE TIME)
Q702 M66007P
Q728 M54555AL
Q727 M54555AL
Q705~Q716 · 2SC1740S
Q717~Q722 · DTC114YS
Q725, Q726 · 2SD882
D703, D704 · AM01Z
DECK B MECHA
DECK A MECHA

TA-RW909

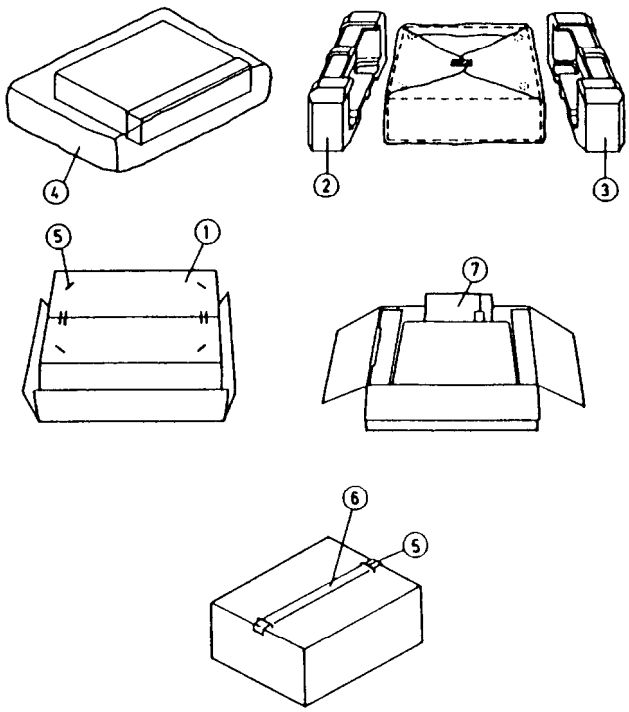
SCHEMATIC DIAGRAM



NOTE

- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED
- VOLTAGE (MEASURED WITH VOLTMETER) ⊏ IS DC VOLTAGE (NO INPUT SIGNAL)
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (⊕) ARE IN μF/WV
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED. EX) 3pF→030, 33pF→330, 330pF→331, 0.033μF→333
- ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS. EX) ▭ ↙ PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

PACKING VIEW



PACKING VIEW PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
1	29052406	Master carton box
2	29091518A	Pad (L)
3	29091519A	Pad (R)
4	29100105	620×550 Poly bag
	29095012-1	800×500 Protection sheet
5	282301	Sealing hook
6	29110071	Damplon tape
7	**Accessary bag ass'y**	
	29341731A	Instruction manual (D)
	29341733A	Instruction manual (UP/UW)
	2010098A	Connection cable
	24140231	Remote control unit RC-232K
	3010054	Battery UM-3
	29365019A	Warranty card (N)
	29358002J	Service station list (N)
	29100006A	350×250 Poly bag
	25055040	CV plug CV-K-2 (W)
	29365024A	Warranty card (F)
	29100107	Poly bag (F)

NOTE (N): Only U.S.A. model
(W): Only worldwide model
(F): Only France model
(UP): Only 230V model